Washington State IRC Technical Advisory Group


# Report of Findings

International Residential Code

December 10, 2002

SBCC

IRC Technical Advisory Group
appointed by the
Washington State Building Code Council
Administered by the Department of Community, Trade and Economic Development

# 2002 IRC TAG
# REPORT OF FINDINGS
December 10, 2002

## Contents

# 2002 IRC TAG
# REPORT OF FINDINGS
December 10, 2002

## INTRODUCTION

The purpose of the 2002 International Residential Code (IRC) Technical Advisory Group (TAG) was to hear an overview of the IRC by International Code Council (ICC) staff and forward a Report of Findings to the State Building Code Council regarding the technical provisions, subject content, format and usability of the IRC.

This Report of Findings includes response to ten questions as assigned on the TAG Work Plan. PART 1 reports responses to questions 1 through 6, which are based on the State Building Code Act, *RCW 19.27.020 Purposes—Objectives—Standards.* PART 2 includes questions 7 through 10, which focus on the content and usability of the IRC.

## SUMMARY OF FINDINGS

### Part 1

The TAG members were directed to respond in writing to questions 1 through 6 with a "yes" or "no", and add any appropriate comments. The yes/no responses are listed below. Please see the Appendix B for the written responses and comments submitted by individual TAG members.

***(1)* Does the IRC *require minimum performance standards and requirements for construction and construction materials, consistent with accepted standards of engineering, fire and life safety?***

TAG Response: YES—9; NO—1

***(2)* Does the IRC *require standards and requirements in terms of performance and nationally accepted standards?***

TAG Response: YES—8; NO—1

*3)* **Does the IRC** ***permit the use of modern technical methods, devices and improvements?***

TAG Response: YES—9; NO—1

***(4)*** **Does the IRC** ***eliminate restrictive, obsolete, conflicting, duplicating and unnecessary regulations and requirements, which could unnecessarily increase construction costs?***

TAG Response: YES—6; NO—4

***(5)*** **Does the IRC** ***retard the use of new materials and methods of installation?***

TAG Response: YES—3; NO—8

***(6)*** **Does the IRC** ***provide unwarranted preferential treatment to types or classes of materials or products or methods of construction?***

TAG Response: YES—0; NO—10

## Part 2

Following the TAG discussion of questions 7 and 8 it was determined that Council staff should provide a summary of what the IRC covers and how it is arranged. TAG members were to provide written response for questions 9 and 10, answering with a "yes" or "no" and any appropriate comments. The yes/no responses are listed below.. Please see the Appendix B for written responses and comments submitted by individual TAG members.

***(7) What does the IRC cover?***

The IRC contains provisions for all aspects of residential construction applying to (1)one and two family dwellings, (2)multiple single-family dwellings (townhouses) which have separate means of egress and are not more than three stories in height, and (3)structures accessory to residences.

***(8) How is the IRC arranged?***

The IRC follows a logical, sequential order from planning and design through construction for residential buildings. The IRC provisions are arranged in the following order:

- Administration of the code (Chapter 1)
- Definitions (Chapter 2)
- Building planning and design (Chapter 3)
- Building construction from the ground up, detailing foundation, floors, walls, ceiling, roof and other components (Chapters 4-10)
- Energy conservation for building envelope, mechanical systems and service water heating (Chapter 11)
- Mechanical systems and equipment (Chapters 12-23)
- Fuel Gas piping and appliance and equipment installation (Chapter 24)

- Plumbing systems including water heaters and fixture installation (Chapters 25-32)
- Electrical requirements developed by NFPA based on the National Electrical Code (Chapters 33-42)
- Reference Standards (Chapter 43)

***(9) Can the IRC be understood by various users including but not limited to:***

***a. Homebuilders;***
***b. Professional designers;***
***c. Specifiers;***
***d. Code enforcement personnel.***

TAG Response: YES—9; NO—1

***(10) Does the IRC have an identifiable and transparent process in its creation and maintenance over time?***

TAG Response: YES—7; NO—1

# Summary of IRC TAG Responses

| Participating **Interest Groups** (Principal Representative) | Yes/No Responses for TAG Report of Findings | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| Architects (John Cochran) | Y | Y | Y | Y | N | N | | | Y | Y |
| Home Builders (Brian Minnich) | Y | Y | Y | Y | N | N | | | Y | Y |
| Construction Building Trades (Bill Misocky) | ---- | ---- | Y | N | N | N | | | Y | ---- |
| Plumbing Industry (Dan Sexton) | Y | Y | Y | N | Y | N | | | Y | Y |
| SMACNA (Joseph Bettridge) | Y | Y | Y | Y | N | N | | | Y | Y |
| HVAC-R Industry (Dale Wentworth) | Y | ---- | Y | N | N | N | | | N | ---- |
| Mechanical Contractors (Larry Andrews) | N | N | N | N | Y | N | | | Y | ---- |
| Building Officials (Leonard Yarberry) | Y | Y | Y | Y | N | N | | | Y | Y |
| Manufacturers (Jim Crowell) | Y | Y | ---- | ---- | Y | ---- | | | ---- | N |
| Cities (Maureen Traxler) | Y | Y | Y | Y | N | N | | | Y | Y |
| Counties (Dave Cantrell) | Y | Y | Y | Y | N | N | | | Y | Y |
| Model Code Organizations | (Not Voting Members) | | | | | | | | | |

**NOTE:** Questions 7 and 8 answered by Council Staff.

# APPENDIX A
## TAG PARTICIPANTS

### TAG Members Providing Comments on TAG Work Plan Questions
(* Principal Voting Representative)

| | |
|---|---|
| Sue Alden | Architect |
| Larry Andrews * | Inland Northwest HVAC |
| Lee Bailey | WABO and City of Burien |
| Jerry Barbera | Port of Seattle, Airport Building Department |
| Joseph Bettridge * | SMACNA and Sunset Air Inc. |
| Joe Brewer | NFPA/IAPMO |
| Dave Cantrell * | Snohomish County |
| John Cochran * | SBCC, Architectural Design Profession |
| Jim Crowell * | 'enLighten' (new construction technology) |
| Brian Minnich * | BIAW |
| Bill Misocky * | SBCC, Construction Building Trades |
| Dan Sexton * | WA State Association of Plumbers & Pipefitters |
| Maureen Traxler * | City of Seattle DCLU |
| Dale Wentworth * | HVAC/R Industry |
| Leonard Yarberry * | WABO and City of University Place |

### Additional TAG Participants

| | |
|---|---|
| Peter De Vries, TAG Co-Chair | SBCC, Cities Eastside |
| Dave Saunders, TAG Co-Chair | SBCC, Building Officials |
| Steve Mullet | SBCC, Cities Westside |
| Sharon Alexander | City of Bellevue Building Dept. |
| Bob Eugene | UL |
| Donovan Quebedeaux | BIAW |
| Kevin Waiter | Snohomish County PUD |
| Terry Tackett | Port of Seattle Airport Building Dept. |
| Gary Wilkerson | Port of Seattle Airport Building Dept. |

# APPENDIX B
## COMMENTS AND RESPONSES TO IRC TAG WORK PLAN QUESTIONS

Answers to Questions One through Ten

## Question 1 - Does the International Residential Code require minimum performance standards and requirements for construction and construction materials, consistent with accepted standards of engineering, fire and life safety?

**Sue Alden:**

Yes. The IRC does require minimum performance standards and requirements for construction and construction materials consistent with accepted standards of engineering, fire and life safety. As stated in Section R 101.3, "The purpose of this code is to provide minimum requirements to safeguard life or limb, health and public welfare." My review of this code supports that this purpose is being fulfilled. Chapter 43 notes all the referenced standards used.

**Larry Andrews:**

No. This is why the American National Standard in the mechanical arena are the NFPA Codes like NFPA 54, 31, 58. The IRC falls way below these and in places where for no reason they came up with their own standards that provide no extra safety but just handcuff the installers and owners.

Examples:

1. IRC. M2103.2 not allowing air testing in cold areas in the country.
2. IRC. M2101.7 not allowing supply fluid to come out of branch on a tee fitting. What about primary and secondary pumping on boilers? Two of the most noted people, and one being an engineer, think it's ok. They are John Siegenthaler, P.E., author of Modern Hydronic Heating and Dan Holohan, author of many other reference books.
3. IRC. M 1411.4 R-4 Insulation on refrigeration piping that's 3/4" thick. No one even stocks it, 3/8" and 1/2" are standard.
4. IRC. G2406.2 No gas dryers in bathrooms.
5. IRC. G2408.3 Where did they ever get the six' rule? What if you back into your garage with a van? I could go on and on with this code. There are just a few listed above.
6. G2445.2 Prohibits commercial cooking appliances in homes.

**Lee Bailey:**

Yes.

**Jerry Barbera:**

Sections R101.3, R102.4, R104.11 Chapter 43. 20 yr.+ background and development including builders/all interest groups.

**Joseph Bettridge:**

Yes. I believe the IRC is very much like the codes we are used to working with, except that it provides slightly more flexibility.

**Joe Brewer:**

Abstain, due to the potential for conflict of interest cited by Co-Chair Saunders related to my relationship with NFPA.

**Dave Cantrell:**

Yes. The IRC has continued to be updated through the national code development process, as was the case with the UBC. The process ensures continued updating in accord with changes in the construction industry as a result of technological development and past performance. Contained within the IRC are both performance-based methods of design and prescriptive methods consistent with industry standards.

**John Cochran:**

Yes. See Section 102.4, 102.11 and Chapter 43.

**Jim Crowell:**

Yes. However, they are not easily obtained from the existing manual.

**Brian Minnich:**

Yes. The IRC does require performance standards consistent with accepted national standards. However from the Builders' perspective, BIAW would question whether or not all the standards contained in the IRC are truly minimum. BIAW believes some of these standards unnecessarily exceed minimum performance standards.

**Bill Misocky:**

I am unable to fully answer the question, as the presentation made did not address the majority of the document. Over 2 hours were spent on the first 10 chapters, where the answer may be – NO, if you consider self-closing devices on garage doors, multiple exits or guardrails that prohibit the passage of a 4" sphere accepted standards. Hopefully we do accept a self-closing device on a

garage door as accepted standards as we passed it for our state code last year as part of the amended 1997 UBC.

The remaining 33 chapters in the IRC were allowed a total of 8 minutes in the presentation, which hardly qualifies one to attempt a complete answer to this question.

**Dan Sexton:**

Yes. During the TAG meeting there were many questions raised about both the first part and the second part of this question, they were not adequately answered. If "minimum performance standards" means some and not all, then yes there are minimum performance standards and requirements. There is a similar problem with the second half; if the intent is 'some of them' the answer is yes. If the intent of this question is 'are all of the minimum performance standards consistent with accepted standards of engineering, fire and life safety' then the answer is no.

**Maureen Traxler:**

Yes. I believe the IRC sets minimum standards at appropriate levels. The provisions of the IRC are based on accepted standards (see my answer to question #2).

**Dale Wentworth:**

Yes. It appears to have minimum performance standards. But not consistent with current documents adopted by the state that this document refers to.

**Leonard Yarberry:**

Yes. This is clearly stated.

## *Question 2 - Does the International Residential Code require standards and requirements in terms of performance and nationally accepted standards?*

**Sue Alden:**

Yes. The IRC does require "standards and requirements in terms of performance and nationally accepted standards." The standards listed in Chapter 43 are nationally accepted standards. The requirements in this code have been developed and tested over time in regional codes and the CABO code and have been accepted and used nationwide.

**Larry Andrews:**

No. They don't accept the American National Standards of NFPA 54, 58, 31.

**Lee Bailey:**

Yes.

**Jerry Barbera:**

Sections 102.4, R104.11 Chapter 43. Absolutely always has been that way. Mr. Andrews remarked about the cost of standards. First of all, the standards are absolutely needed to set up a national level of manufacture and design. Mr. Andrews seems to be arguing that we don't need standards because of the cost! Second of all, no jurisdiction will have to buy all these standards. Thirdly, neither will the industry except for those standards that apply to them.

**Joseph Bettridge:**

Yes.

**Joe Brewer:**

Abstain. (See my answer to question #1.)

**Dave Cantrell:**

Yes. (See my answer to question #1.)

**John Cochran:**

Yes. See Section 102.4 and Chapter 43.

**Jim Crowell:**

Yes. However, they are not easily obtained from the existing manual.

**Brian Minnich:**

Yes.

**Bill Misocky:**

See my answer to question #1.

**Dan Sexton:**

The same qualified yes. (See my answer to question #1.)

**Maureen Traxler:**

Yes. The IRC has a section that allows the building official to approve alternate materials and methods of design and construction. The decision whether to allow an alternate is based on the building official's determination that the performance of those methods and materials is satisfactory.

The IRC is based on nationally accepted standards. Much of it is based on the CABO One- and Two-family Dwelling Code; other sections are based on current editions of other standards. For example, the seismic design provisions are based on proposals from the Building Seismic Safety Council, an organization established by the National Institute of Building Sciences that is developing the national standards for building earthquake regulations. Industry groups, such as the American Forest and Paper Association, Underwriters Laboratories, and many others, participate in the IRC process and propose code changes that update the Code to the current standards of their industry.

**Dale Wentworth:**

Not completely.

**Leonard Yarberry:**

Yes. It is based upon nationally recognized standards.

## *Question 3 - Does the International Residential Code permit the use of modern technical methods, devices and improvements?*

**Sue Alden:**

Yes. The IRC does permit the "use of modern technical methods, devices and improvements," as noted in Section R 104.11, Alternative materials, design and methods of construction and equipment. This section has been in our state codes and the other national codes and has been proven to be effective in meeting this goal.

**Larry Andrews:**

No. Everything has to be listed and labeled in order to be used. Which requires huge sums of money or you have to write a letter and explain to the code official why the code will not work for you. Then the code official will see if your letter has any merit and if you have a code official like the one in the City of Lacey you might as well give up. Because there is no way he would ever approve anything that is not listed and he stated this in one of our TAG meetings. Sadly, there is no way to vote him out of office.

**Lee Bailey:**

Yes, as stated in Section R104.11.

**Jerry Barbera:**

Section R104.11 Alternative materials, etc. It is included in the document itself. There are all sorts of new and creative ways to design residential buildings than there ever was before. And, like any modern code, alternatives are encouraged if thy meet the intent of the life-safety sanitation and structural provisions.

**Joseph Bettridge:**

Yes. The IRC appears more flexible that what I have previously used.

**Joe Brewer:**

Abstain. (See my answer to question #1.)

**Dave Cantrell:**

Yes. There are a few cases where the IRC contains provisions for materials or methods of construction that are not contained within current state adopted codes or that are unfamiliar to this region, yet the provisions are consistent with national standards and methods found elsewhere in the country and conform to applicable standards.

**John Cochran:**

Yes. See Section 104.11.

**Jim Crowell:**

Somewhat. It permits but does not make it easy in order to encourage improvement.

**Brian Minnich:**

Yes. However, the proof is in the pudding. Until builders start constructing houses to this code in Washington State, it will be difficult to say with complete certainty.

**Bill Misocky:**

Yes. The document contains an alternative method section (104.11) that allows for modern methods and improvements provided the intent of the code is met.

**Dan Sexton:**

Yes.

**Maureen Traxler:**

Yes. The IRC has added prescriptive sections that provide for acceptance of new methods, devices and equipment by individual jurisdictions as they are developed. Examples are insulated concrete forms and steel framing. Additionally, Sections R104.10 and R104.11 allow the building official to approve new materials and methods. Section R104.11 provides in part: "The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved." These two sections of the IRC are almost identical to Sections 104.2.7 and 104.2.8 of the current Washington State Building Code.

**Dale Wentworth:**

Yes. The document contains alternative methods.

**Leonard Yarberry:**

Yes. It is clearly stated that the intent is to recognize new methods and technologies.

## *Question 4 - Does the International Residential Code eliminate restrictive, obsolete, conflicting, duplicating and unnecessary regulations and requirements, which could unnecessarily increase construction costs?*

**Sue Alden:**

Yes. The IRC was developed out of the ICC codes and the three regional model codes, which have been tested over time, reviewed and refined to provide minimum code requirements and weeding out "restrictive, obsolete, conflicting, duplicating and unnecessary regulations and requirements which could unnecessarily increase construction costs."

**Larry Andrews:**

No. As noted above there are many unnecessary regulations and added costs.

**Lee Bailey:**

Yes. By using a residential code, the contractor is spared any commercial requirements which otherwise might be applied under a single one size fits all code.

**Jerry Barbera:**

This is clear when one looks at all the alternatives. One major example is the different (and perfectly valid!) ways to do plumbing. There was some testimony and implication that the plumbing sections did not comply with the UPC. Well first of all, if the UPC doesn't allow alternatives than it doesn't comply with the state RCW. But secondly, the IRC allows for more cost-effective plumbing, which is important for homebuilders and buyers.

**Joseph Bettridge:**

Yes. The IRC appears to be fairly flexible, well coordinated, and I suspect it would produce a safe, lower cost home to the consumer.

**Joe Brewer:**

Abstain. (See my answer to question #1.)

**Dave Cantrell:**

Yes. (See my answers to questions #1 and #3.)

**John Cochran:**

Yes. See page iii, "Development", 4th paragraph, last sentence.

**Jim Crowell:**

Minimal. (See my answer to question #5.)

**Brian Minnich:**

Yes. However, most builders would argue that the current UBC is not obsolete and is working just fine.

**Bill Misocky:**

No, not provided during the meetings (see my answer to question #1) but upon my own research I have found obsolete requirements in plumbing construction. The drainage and venting requirements found in Chapter 30 & 31 have their origins in an iron-conserving era long since past. The minimum velocity of flow to achieve scouring action in piping is two feet per second. Sand, grit and other foreign matter, which are held in suspension in the wastewater, will begin to deposit in the pipe when velocities fall below two fps. Based upon Manning's formula for uniform flow and using Table P3005.4.2 will reveal that all residential construction could have building drains with velocities of 1.83 fps.

**Dan Sexton:**

No. During the TAG meeting there were many examples given of restrictive, obsolete, conflicting, duplicating and or unnecessary regulations and requirements. The only explanations given at the TAG meeting was that the SBCC can amend these errors, or a challenge to actually prove that these restrictive, obsolete, conflicting duplicating and or unnecessary regulations and requirements actually increase construction costs. It seems almost everyone could agree these obsolete regulations do exist, the only debate seemed to be on proving they would increase construction costs. I think if we can agree there are some bad regulations, we should be able to agree the bad regulations do not have a positive effect.

**Maureen Traxler:**

Yes.

**Dale Wentworth:**

No. This document adds duplication and unnecessary conflict with our existing adopted codes (i.e. UBC, UMC, UPC, NEC).

**Leonard Yarberry:**

Yes. It is based upon simplification of residential construction.

## *Question 5 - Does the International Residential Code retard the use of new materials and methods of installation?*

**Sue Alden:**

No. The IRC does <u>not</u> retard the use of new materials and methods of installation because Section R 104.11 allows such alternatives, as noted in the response to question 3.

**Larry Andrews:**

Yes. Under their system, I don't know how small companies would be able to get all the listing to use a new material if they won't let you use it until it becomes approved. The amount of money it would take would break most small businesses today.

**Lee Bailey:**

No. (See my answer to question #3.)

**Jerry Barbera:**

Section R104.11 ER's. Absolutely not. It encourages alternatives.

**Joseph Bettridge:**

No. The IRC appears flexible to new materials and methods of installation.

**Joe Brewer:**

Abstain. (See my answer to question #1.)

**Dave Cantrell:**

No. (See my answers to questions #1 and #3)

**John Cochran:**

No. See page iii, "Development", 4th paragraph, last sentence.

**Jim Crowell:**

Yes – Extensive.

When it requires a code expert to decipher the code relative to its requirements plus extensive education of each building official, a builder is not going to make the effort to introduce new improvements to construction. That is why we are still building basically the same way we did at the turn of the century. NAHB and PATH list the introduction of stick framing in 1833 as the last major improvement to the construction of housing.

The current code requires an extensive investment of funds in order to introduce an improvement to construction. Therefore it requires a major improvement for which proprietary protection can be obtained and a company willing and able to finance the introduction of an improvement. We will have almost $2 million dollars invested before we can introduce ours.

To introduce a product at the lowest cost, you need volume. Therefore, you want to try to meet the conditions of the major market for your system. On the 7th of this month, I was working with my dynamic engineer to design the shape of the structural members. We tried but failed to ascertain the roof loading required to meet the 100-year and 500-year wind, snow, earthquake records of every part of the United States. When I posed this question today to the code presenters, their answer was that it is there, but a code expert using about 3 feet of manuals would need to be used to find the answer. This retards the introduction of new materials and methods.

**Brian Minnich:**

No. Again, we won't know for sure until builders start using the code.

**Bill Misocky:**

See my answer to question #3.

**Dan Sexton:**

Yes. (See my answer to question #6.)

**Maureen Traxler:**

Not unreasonably. The IRC provides appropriate procedures for approval of new materials and methods of installation. (See my answer to question #3.)

**Dale Wentworth:**

No. Allows for modern methods and improvements provided the intent of the code is met.

**Leonard Yarberry:**

No. It allows for the acceptance of new materials and methods.

## *Question 6 - Does the International Residential Code provide unwarranted preferential treatment to types or classes of materials or products or methods of construction?*

**Sue Alden:**

No. The IRC does not provide unwarranted preferential treatment to types or classes of materials or products or methods of construction. The development of the ICC codes, including the IRC, is by government agencies representing the public's interest, without any financial interest in any of these elements. The one exception would be Part VIII - Electrical, Chapters 33 through 42, which is included through an agreement (or license) with the National Fire Protection Association (NFPA) which produced these chapters and has undertaken the maintenance process for future electrical provisions. The NFPA process is different than the ICC governmental process.

**Larry Andrews:**

No. Because if approved it's all right but if not look out.

**Lee Bailey:**

No.

**Jerry Barbera:**

No. All materials are represented in generic fashion.

**Joseph Bettridge:**

No. The IRC appears to be unbiased towards any specific products of methods of construction.

**Joe Brewer:**

Abstain. (See my answer to question #1.)

**Dave Cantrell:**

No.

**John Cochran:**

No. See page iii, "Development", 4th paragraph, last sentence.

**Jim Crowell:**

Somewhat. By providing for existing systems and making it hard to introduce innovation.

**Brian Minnich:**

No. Again, won't know for sure until the code is actually used in the state.

**Bill Misocky:**

Initially no one would have been able to answer this question based upon the information provided at the meeting. Through my own research I could not find any evidence of such after a brief review of the entire document.

**Dan Sexton:**

I don't know that this was ever answered to my satisfaction. I know the issue was raised about many types of material and new methods of construction but I'm willing to say no.

**Maureen Traxler:**

No.

**Dale Wentworth:**

No. I could not find any evidence that would lead to say otherwise.

**Leonard Yarberry:**

No. References are unbiased in nature.

## *Question 7 - What does the IRC cover?*

Answered by Council Staff in the TAG Report of Findings.

## *Question 8 - How is the IRC arranged?*

Answered by Council Staff in the TAG Report of Findings.

## *Questions 9 - Can the IRC be understood by various users including but not limited to:*

- ***a. Homebuilders;***
- ***b. Professional designers;***
- ***c. Specifiers;***
- ***d. Code enforcement personnel.***

**Sue Alden:**

Yes. Architects can easily understand this code. It is much easier to use for 1- and 2-family residential design than to search through the individual discipline codes to find only those requirements applicable to this one occupancy type. It is also less costly to purchase a $35 code than the full set of codes for ten times that cost. Architects across the nation have been using the CABO or other 1- and 2-family codes for years and have found the prescriptive codes to be useful. The IRC is more up-to-date and has the alternate materials and methods paragraph for those who wish to do a more unusual design. Small residential architects are looking forward to using this new code in this state.

**Larry Andrews:**

a. Homebuilders: Yes.
b. Professional designers: Yes.
c. Specifiers: Standards, etc. Yes.
d. Code enforcement personnel: Yes.

**Lee Bailey:**

Yes. I find the IRC to be well ordered, complete and easy to understand.

**Jerry Barbera:**

e. Homebuilders: They are intimately involved.
f. Professional designers: Are currently using the provisions.
g. Specifiers: Standards, etc. They are already using it and have used its predecessor, the one-and-two-family-dwelling code for nearly 20 years.

h. Code enforcement personnel: They have been intimately involved in the process and have been involved in its development.
i. Others: It is written so that a homebuilder can have a complete code in one volume without the other provisions that only apply to different occupancies and types of construction.

**Joseph Bettridge:**

I believe the IRC can be understood by:
a. Homebuilders (should be good for the layperson – simple language/diagrams etc)
b. Professional designers (no question)
c. Specifiers (no question)
d. Code enforcement (no question)

**Joe Brewer:**

Abstain with comment. Elements of the code that are not adopted, such as the plumbing provisions, will be confusing. Two sets of requirements in the field will result in disputes. The perceived benefit of providing one document that includes all requirements is lost.

**Dave Cantrell:**

Yes. The IRC is formatted numerically to the common code format. The chapter headings and subheadings are clearly defined. There are numerous figures and illustrations that help the code user to understand applicable code sections as they apply to design and installation. Referenced standards are included appropriately within the corresponding code sections. In addition, Chapter 43 - "Referenced Standards" refers the code user to the code section where the particular standard applies. This assists the designer/installer in determining which standard will apply to the product/method being discussed. On a number of occasions, I personally have utilized the IRC (and other International Codes) to more readily identify applicable standards for various produces that I could not easily (or at all) identify in current state adopted codes.

**John Cochran:**

Professional designers; Yes

**Jim Crowell:**

Only by a professional with training and/or experience. It is cumbersome and thus discourages innovation. (See my answer to question #5.)

**Brian Minnich:**

The National Association of Homebuilders participated extensively with the building officials in the development of the IRC and holds three seats on the IRC drafting committee. While any new code will take some time for builders to fully understand, the IRC was clearly written, developed and organized to be user friendly for the residential building community. Builders may not like everything in the new building code. However, the building industry does believe the code is understandable.

**Bill Misocky:**

Does the IRC have a clear, logical arrangement in common code format, free from local or climatic language/slang? Yes, the document chapters are positioned well for the use by many users and are written in clear code format.

**Dan Sexton:**

Yes. I think if we can assume these people can understand existing codes, they can probably understand this one.

**Maureen Traxler:**

Yes. Someone totally unfamiliar with building construction would probably need some training, but the normal code user should be able to understand the provisions of the IRC. The IRC was drafted by a committee composed of various users: home builders, an insurance industry representative, architects and building officials, which I believe resulted in an easier-to-understand code. The purpose of the code is to be a simple, prescriptive and complete building code for residences. It includes many drawings and diagrams that illustrate code requirements.

**Dale Wentworth:**

No, not as a stand-alone document. This document refers to many other documents that are not currently adopted by the state of Washington.

**Leonard Yarberry:**

Yes. The format is more usable than previous codes. Amble illustrations and tables provide simplified usage for builders. Clear reference and prescriptive allowances should aid designers, manufactures and specifiers. The organization and clear language would make application and enforcement less controversial.

## *Question 10 - Does the IRC have an identifiable and transparent process in its creation and maintenance over time?*

**Sue Alden:**

Yes. The development and maintenance over time of the IRC by the ICC governmental process is identifiable and transparent. As a member of the SBCC Ad-Hoc Code Adoption Committee, I was able to closely study and question the processes of the code development groups. I found the ICC process more balanced, transparent and open than even the ICBO process had been in the development of our state's Uniform Codes. It is the best system to provide for the general public's interest.

Anyone may submit change proposals for consideration and publication, may attend the public hearings and present or comment on those published, observe the Code Development Committee deliberations and decisions, make motions from the floor when they disagree with the decisions, and have both the assemblies' actions and those of the committee published for further comments, testimony and consideration at the ICC annual meeting. Final action is taken at the ICC annual meeting by eligible voters, the active members of BOCA, ICBO and SBCCI.

These final voters are acting in the best interest of the public, as the appointed representatives of those officials elected by the public to represent them. They have no financial interest in any of the requirements or regulations in the code. They are the most appropriate group to make those decisions. If anyone disagrees, there is the regular appeal process of the ICC.

**Larry Andrews:**

Identifiable, Yes. Transparent, only to the point that I understand that the code official has the final say on everything under this code. After the recent news reports about several inspectors being charged with bribery, do we want to give the group of individuals such awesome powers? I think not. Does absolute power corrupt absolutely?

**Lee Bailey:**

Yes. The process is very public and invites all interested parties to participate.

**Jerry Barbera:**

Yes, as was described in Mr. Stevenson's presentation.

**Joseph Bettridge:**

Yes! This point was made painfully clear during the first portion of the meeting.

**Joe Brewer:**

Abstain with comment. Amendments submitted to the IRC development process by the ICC board compromise the integrity of the entire process. The appeal process of the ICC requires any aggrieved individual to address appeals to the ICC Board. This brings the objectivity of the Board into question.

**Dave Cantrell:**

Yes. Being both a proponent of code changes to the IRC and attending all phases of the IRC code development process; I find the process to work well. The requirements within the various portions of the process are clearly identified and are not confusing. Each step and subsequent time-line is clearly defined. I have had a number of proposals to the International Codes that have been approved over the last few years, along with a number that have not been approved. However, where such have been disapproved, I generally have been given enough technical information through the public testimony and comment phase, along with the committee's

explanation for their recommendation, to make the necessary changes and to re-introduce the proposal during the next phase with appropriate modifications.

**John Cochran:**

Yes. See page iv, "Maintenance".

**Jim Crowell:**

No.

**Brian Minnich:**

Yes.

**Bill Misocky:**

The IRC has an identifiable process, however no further explanation of "transparent" was provided. No answer was given at the meeting on code change processes initiated by the ICC Board of Directors.

**Dan Sexton:**

This seemed to be a major sticking point for some people. I'm willing to say yes as long as I do not have to explain what any of it means.

**Maureen Traxler:**

Yes. The IRC process is transparent. It is published and made available to the public. It's available on the ICC web site, and by calling or writing to ICC or any of the three model code organizations that make up ICC. The necessary forms are available on-line and by contacting ICC or any of its member model code organizations. Anyone is allowed to propose code changes; to speak in favor of or against code changes; to vote to challenge committee decisions; to submit public comments that place code change proposals on the agenda for membership action.

I would characterize the IRC process as transparent. All action of the code development committees takes place at the public hearing in front of the public assembly. Actions taken by the Committee in the public assembly are final unless a public comment is submitted. All actions of the committee and all public comments are made available to the public by a specified date on the ICC web site and by contacting any of its three member model code organizations. Votes of the membership on the public comments are final, unless specifically designated as advisory or unless appealed. I have participated in the IRC process, and I believe participation is as easy as reasonably possible while still providing safeguards that produce a good quality code.

**Dale Wentworth:**

Yes to identifiable process. Not sure what is meant by saying transparent in its creation and maintenance ?

**Leonard Yarberry:**

Yes. The code development and revision process is straightforward and open.

## Additional Comments

**Bill Misocky:**

I must preface my report by noting that some of the questions have been changed to solicit a definitive response. I suggested crafting a better selection of interrogatives for some questions but the Chair of the TAG stated that we did not have that ability. I heartily disagree, the council did not seek a vote nor did it formally approve the questions placed before the TAGs. It was my hope this information would be of use to the Council to now make an informed decision regarding the IRC and not one based upon political motivation.

**Brian Minnich:**

BIAW believes Washington State should not just follow the IRC, but should adopt and follow the ICC's family of building codes as well. Also, BIAW still believes that local building code amendments are often unnecessary and expensive additions to the state building code. If the "I" codes are adopted, clearly all local building code amendments should first be approved by the State Building Code Council before going into effect within a local jurisdiction.

**Larry Andrews:**

After studying the International Residential Building Code in regards to the mechanical section, We feel that it would be a mistake for the citizens of this state to adopt this code for the following reasons. Safety, Cost, needless restrictive requirements and the ability to implement such a code due to all the references required.

1. Ml 301.1 If the situation is not covered in the IRC manual you are then required to use IMC and the 1FGC, which requires at a minimum of 154 different references in the body of the text. (see references noted at end of document and note that these are needed to understand the body of the code}.

2. Ml 3 05.1 Requires a minimum of 30 inches clearance in front of appliances. National standard is 24 inches. This would entail extra expense to comply and is not a minimum.

3. M1401.2 This is so excessively vague that it fails to outline any criteria.

4. M14114.4 Insulation of refrigeration piping to be a minimum ofR-4 which required 3/4 inch insulation, which is NOT a standard in the industry. 3/8 and 1/2 inch are standards. This would cost at least 20 more and is not readily available,

5. Chapter 15 and 16, Exhaust Systems. No restrictions are outlined for the terminations of the following. Dryer vents. Kitchen exhaust. Bathroom exhaust. Present and 1APMO codes have restrictions to prevent the return of these gasses to your living area.

6. Ml 701.3 Volume dampers are prohibited in combustion air openings. This would violate Washington state ventilation code where we are required to install a damper in fresh air and combustion air makeup for prescriptive integrated forced air supply ducts.

7. M2101.7 Prohibited tee applications. No other code requires this and could be a detriment to balancing a system.

8. M2103.3 and M2105.1 Requirement of Hydronic pipe testing requires a hydrostatic pressure test of 100 PSI for 30 minutes. This is in excess of the current standard of 80 PSI and does not deal with freezing conditions when an air test is required?

9. Chapter 22. And M2201.2 Special piping in oil systems limits oil tanks to 660 gallons, but the American national standard has no such limit. Note in the IRC that 660-gallon tanks can be installed in the second story and above without any containment, which is against the American national standard. No emergency procedures are outlined. No test procedures are outlined for tightness. No firematic safety valve is required. No requirements are outlined for abandoning of existing tanks. No detailed instructions are stated to outline setting of tanks and piping.

10. G2408.3 Private garages. If no protection for vehicle impact is provided, equipment has to be mounted 6 feet off the floor. No other code requires 6-foot clearance. Does not address question of "What is added protection".

11. G2406.2 Prohibited locations for gas appliances. Prohibits gas dryers in bathrooms. American National Standard does not prohibit.

12. G2445.2 Prohibited locations for cooking appliances. Commercial cooking appliances are not allowed in a home. Many homes are having commercial cooking appliances installed with proper installation and fire protection codes adhered to. American National Standard does not limit the private homeowner in the way.

Note that this is a brief list of many items that are dealt with in this change. We believe adoption of this code would be detrimental to the safe and restrictive practices that the industry adheres to in the present day.

Note references: NFPA 58, 54 and 31 as American standards.

Number of Reference & Page Numbers for International Mechanical Code

| Number of References | Page in lMC | References Books Needed |
|---|---|---|
| 1 | 19 | International Energy Conservation Codes "IECC" |
| 2 | 19 | International Fuel Gas Code "IFCC" |
| 3 | 19 | International Code Council Electrical Code "(CCEC" |
| 4 | 19 | International Plumbing Code "IPC" |
| 5 | 19 | International Building Code *IBC" |
| 6 | 19 | IBC |
| 7 | 20 | IBC |
| 8 | 20 | IBC |
| 9 | 20 | IBC |
| 10 | 20 | IBC |
| 11 | 20 | IBC |
| 12 | 21 | IECC |
| 13 | 21 | IBC |
| 14 | 21 | IBC |
| 15 | 23 | ICCEC |
| 16 | 24 | ICCEC |
| 17 | 25 | IBC Masonary Chimneys |
| 18 | 25 | IBC |
| 19 | 25 | International Fire Code "IFC" |
| 20 | 25 | IFC |
| 21 | 25 | ASHRAE Handbook of fundamentals<br>International Energy Conservation Code "IECC" |
| 22 | 27 | IBC |
| 23 | 27 | IBC |
| 24 | 27 | IBC |
| 25 | 27 | IBC |
| 26 | 27 | IBC |
| 27 | 30 | IBC |
| 28 | 32 | IPC |
| 29 | 33 | IFC |
| 30 | 33 | National Fire Protection Association 704 "NFPA 704" |
| 31 | 34 | IFC |
| 32 | 34 | NFPA |
| 33 | 34 | IFC |
| 34 | 34 | IPC |
| 35 | 35 | IFC |
| 36 | 35 | IFC |
| 37 | 35 | IFC |
| 38 | 35 | IFC |
| 39 | 36 | IBC |
| 40 | 36 | IFC |
| 41 | 36 | IBC |
| 42 | 36 | IBC |
| 43 | 36 | IBC |
| 44 | 36 | IBC |
| 45 | 36 | IFC |

| | | |
|---|---|---|
| 46 | 37 | IFC |
| 47 | 39 | IBC |
| 48 | 40 | IBC |
| 49 | 40 | IBC |
| 50 | 40 | IBC |
| 51 | 41 | IBC |
| 52 | 43 | IBC |
| 53 | 43 | IFC |
| 54 | 43 | IFC |
| 55 | 43 | IFC |
| 56 | 43 | IFC |
| 57 | 44 | IFC |
| 58 | 44 | IBC |
| 59 | 44 | IBC |
| 60 | 45 | NFPA 69 |
| 61 | 45 | IBC |
| 62 | 46 | IPC |
| 63 | 46 | IBC |
| 64 | 46 | IBC |
| 65 | 46 | IBC |
| 66 | 46 | IBC |
| 67 | 46 | IBC |
| 68 | 46I | BC |
| 69 | 46 | IBC |
| 70 | 47 | IBC |
| 71 | 47 | IBC |
| 72 | 47 | IBC |
| 73 | 47 | IBC |
| 74 | 49 | IBC |
| 75 | 49 | ICCEC |
| 76 | 49 | ICCEC |
| 77 | 50 | IBC |
| 78 | 50 | NFPA 72 |
| 79 | 50 | ICCEC |
| 80 | 50 | IBC |
| 81 | 50 | NFPA 13 |
| 82 | 50 | NFPA 72 |
| 83 | 50 | IFC |
| 84 | 50 | IFC |
| 85 | 50 | IFC |
| 86 | 50 | IFC |
| 87 | 50 | IFC |
| 88 | 50 | IFC |
| 89 | 50 | IFC |
| 90 | 50 | IFC |
| 91 | 51 | ICCEC |
| 92 | 51 | IBC |
| 93 | 51 | NFPA 82 |

| | | |
|---|---|---|
| 94 | 51 | IBC |
| 95 | 52 | IBC |
| 96 | 52 | Sheet Metal & Air Conditioning Contractors National Assoc., Inc. “SMACNA” HVAC Duct Construction Standard-Metal and Flexible |
| 97 | 52 | SMACNA Fibrous Glass Duct Construction Standard |
| 98 | 53 | IECC |
| 99 | 53 | IBC |
| 100 | 53 | IECC |
| 101 | 53 | IBC |
| 102 | 54 | IBC |
| 103 | 54 | NFPA 72 |
| 104 | 55 | IBC |
| 105 | 55 | IBC |
| 106 | 56 | IBC |
| 107 | 56 | IBC |
| 108 | 56 | IBC |
| 109 | 57 | IFGC |
| 110 | 57 | IFGC |
| 111 | 57 | IBC |
| 112 | 61 | IFC |
| 113 | 61 | IBC |
| 114 | 61 | IBC |
| 115 | 62 | IBC |
| 116 | 67 | IFGC |
| 117 | 67 | IBC |
| 118 | 67 | IFGC |
| 119 | 67 | IBC |
| 120 | 67 | IBC |
| 121 | 68 | IBC |
| 122 | 68 | IPC |
| 123 | 68 | IFC |
| 124 | 68 | IBC |
| 125 | 69 | NFPA 37 |
| 126 | 69 | NFPA 37 |
| 127 | 70 | NFPA 31 |
| 128 | 70 | NFPA 31<br>Remove Chapter 10. The State has its' own Boiler Code |
| 129 | 77 | IPC |
| 130 | 77 | IFGC |
| 131 | 77 | ASHRAE 15 |
| 132 | 77 | IFGC |
| 133 | 77 | ASHRAE 34 |
| 134 | 8 | 1NFPA 70 |
| 135 | 81 | IBC |
| 136 | 81 | IFC |
| 137 | 81 | ASHRAE 15 |
| 138 | 83 | IPC |

| | | |
|---|---|---|
| 139 | 83 | IFC |
| 140 | 84 | ASHRAE 15 |
| 141 | 85 | IFC |
| 142 | 87 | IECC |
| 143 | 87 | IECC |
| 144 | 87 | IPC |
| 145 | 87 | IPC |
| 146 | 87 | IBC |
| 147 | 89 | IFC |
| 148 | 89 | IPC |
| 149 | 89 | NFPA 34 |
| 150 | 93 | IPC |
| 151 | 93 | IBC |
| 152 | 93 | IBC |
| 153 | 93 | IBC |
| 154 | 93 | IBC |

**Cost of Books (In 90 pages of text, the IMC has a 154 references from 18 different sources.)**

| | | | |
|---|---|---|---|
| | $57.05 | 1 | IBC |
| | $21.75 | 2 | IECC |
| | $45.00 | 3 | IFGC |
| | $54.00 | 4 | ICCEC |
| | $46.55 | 5 | IPC |
| | $144.00 | 6 | ASHRAE Hand Book of Fundamental |
| | $35.00 | 7 | ASHRAE 15 |
| | $45.00 | 8 | ASHRAE 34 |
| | $42.75 | 9 | NFPA 13 |
| | $26.75 | 10 | NPPA 31 |
| | $26.75 | 11 | NPPA 37 |
| | $33.25 | 12 | NFPA58 for IFGC |
| | $26.75 | 13 | NFPA 69 |
| | $42.75 | 14 | NFPA 72 |
| | $26.75 | 15 | NFPA 91 |
| | $26.75 | 16 | NFPA 704 |
| | $106.00 | 17 | SMACNA Fibrous Glass Duct Construction Standards |
| | $136.00 | 18 | SMACNA HVAC Duct Constrution Standard Metal and Flexible |
| **Total** | $942.85 | | |

| | |
|---|---|
| $45.00 | International Mechanical Code Book |
| $47.05 | International Residential Code Book |
| $42.75 | International Fuel Gas Code Book |

Grand Total **$1,077.65**